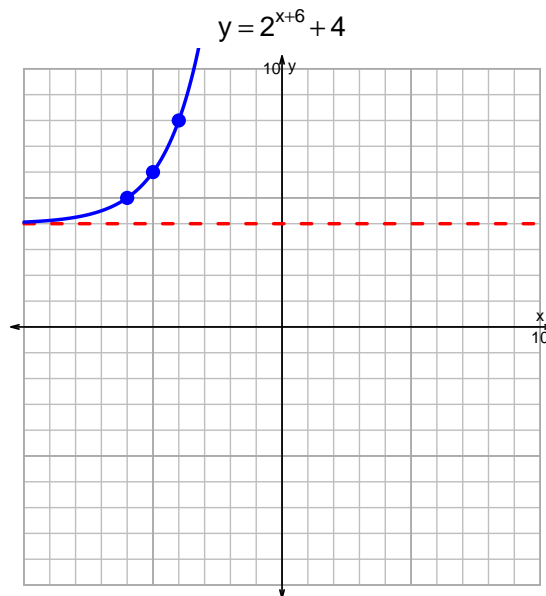
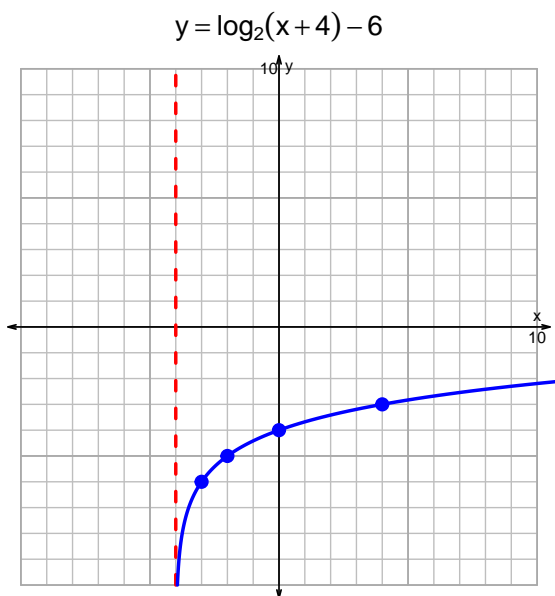


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v128)

1. Graph $y = \log_2(x + 4) - 6$ and $y = 2^{x+6} + 4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$13 = \left(\frac{7}{5}\right) \cdot 2^{-4t/3}$$

Divide both sides by $\frac{7}{5}$.

$$\frac{13 \cdot 5}{7} = 2^{-4t/3}$$

Take log, base 2, of both sides.

$$\log_2 \left(\frac{13 \cdot 5}{7} \right) = \frac{-4t}{3}$$

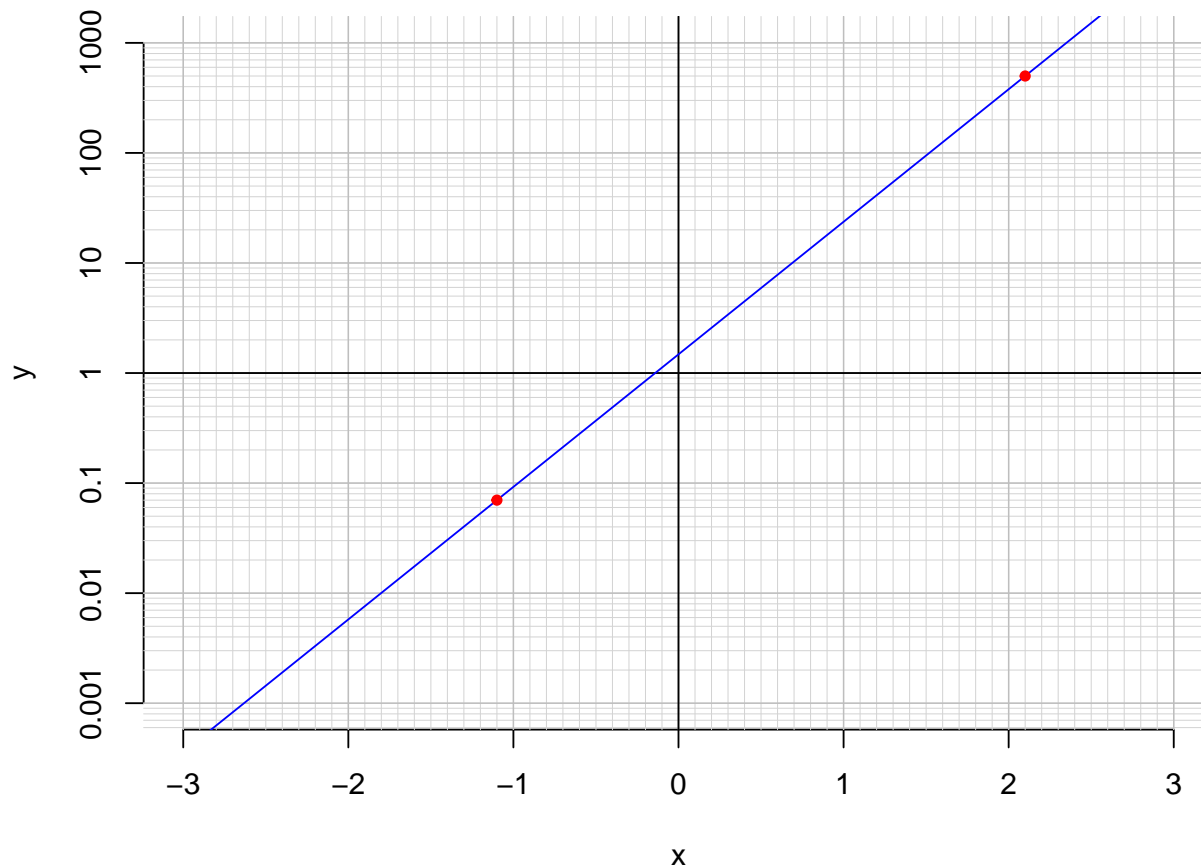
Divide both sides by $\frac{-4}{3}$.

$$\frac{-3}{4} \cdot \log_2 \left(\frac{13 \cdot 5}{7} \right) = t$$

Switch sides.

$$t = \frac{-3}{4} \cdot \log_2 \left(\frac{13 \cdot 5}{7} \right)$$

3. An exponential function $f(x) = 1.48 \cdot e^{2.77x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(2.1)$.

$$f(2.1) = 500$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{1}{2.77} \cdot \ln\left(\frac{x}{1.48}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.07)$.

$$f^{-1}(0.07) = -1.1$$